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ISOPYRUM AQUILEGIOIDES L.

GAVIN DE BEER
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THE IDENTITY OF *ISOPYRUM AQUILEGIOIDES* L.

By GAVIN DE BEER & WILLIAM T. STEARN

IN a recent paper¹, Dr. A. Becherer has raised a question of great interest relating to a plant described² by Caspar Bauhin in 1620 as *Aquilegia montana parvo flore thalictri folio* "In Helvetiorum alpihus reperitur". As Drummond and Hutchinson (1920) indicated³, Linnaeus cited⁴ Bauhin's account under his own *Isopyrum aquilegioides* in the *Species Plantarum* (1753); at the same time he also cited works by Ray, Morison and Haller, and gave its distribution as "*Habitat in Alpibus Helveticis, Tridentinis, Apenninis*". The Linnaean Herbarium⁵, now in London, contains no specimen under the name *Isopyrum aquilegioides* and the identification of the plants concerned therefore constitutes a problem. It is historically interesting to ascertain the identity of Bauhin's plant. It is also nomenclaturally important, as Becherer has indicated, for its relevance to the typification of *Isopyrum aquilegioides* L.

Bauhin's herbarium, now at the Botanisches Institut der Universität Basel, once belonged to Werner de Lachenal who, in 1776, published a paper⁶ with an engraving purporting to represent Bauhin's specimen, then already 150 years old (Fig. 1). In 1817, Augustin Pyramus De Candolle had evidently failed⁷ to find this *Aquilegia* in Bauhin's herbarium, and in 1843 Hagenbach stated⁸ that it was missing. Becherer, however, has found there an incomplete specimen consisting of stem and leaves, but without flowers. Furthermore, Becherer states that Lachenal's figure does not exactly represent the specimen now in Bauhin's herbarium because the arrangement of the leaves is different, although their form is the same, and he considers that these leaves represent *Aquilegia einseleana* F. W. Schultz.

¹ Becherer, A., "Bemerkungen zur Gattung Aquilegia", in Ber. Schweiz. Bot. Ges. lxxviii: 289-294 (1958).

² Bauhin, C., *Prodromus Theatri Botanici*: 75 (1620); also *Pinax Theatri Botanici*: 144 (1623).

³ Drummond, J. R., & Hutchinson, J., "A revision of *Isopyrum* (Ranunculaceae) and its nearer allies", in Kew Bull. 1920: 146 (1920).

⁴ Linnaeus, C., *Species Plantarum* i: 557 (1753).

⁵ Savage, S., *A Catalogue of the Linnaean Herbarium* (1945). To the list of publications on the Linnaean Herbarium given by Stearn, *Introd. Sp. Pl.*: 111, 123-124 (1957), should be added: Lindberg, H., "Växter kända från Norden i Linnés Herbarium", in Act. Bot. Fenn. lx (1958).

⁶ Lachenal, W. de, *Observationes botanico-medicae*: 12, 13 (1776); reprinted in Act. Helvet. viii: 146, t. 5 (1777).

⁷ Candolle, A. P. De, *Regni vegetabilis Systema naturale*, i: 337 (1817). Cf. Bull. Herb. Boiss., Sér. 2, iv: 304 (1904).

⁸ Hagenbach, C. F., *Florae Basiliensis Supplementum*: 97 (1843).



AQUILEGIA montana parvo flore Thalictri folio C.B.

FIG. 1. *Aquilegia montana parvo flore Thalictri folio* C.B. as illustrated in Lachenal, Obs. Bot.-med. (1776).

Lachenal's illustration shows a flower, and this Becherer attributes to *A. vulgaris* L. because of its small size. He therefore considers that Lachenal's figure was a reconstruction based on portions of two different species, i.e. pressed foliage of *A. einseleana* and a fresh flower of *A. vulgaris*, and that the present specimen may be a more recent substitute for the specimen delineated by Lachenal.

It remains to summarize the identification of Bauhin's *Aquilegia* by various authors since Linnaeus who have considered the problem :

Lachenal (1776) *A. viscosa* Gouan ;

A. P. De Candolle (1817) *A. pyrenaica* DC.;

Hagenbach (1843) *A. vulgaris* L. ;

Schott¹ (1853) *A. bauhini* Schott (i.e. *A. einseleana* F. W. Schultz, *vide* Zimmerman² (1875)) ;

H. P. Fuchs³ (1957) *A. einseleana* F. W. Schultz.

No identification was attempted by Haller⁴, Gaudin⁵, or Drummond and Hutchinson.

Linnaeus himself never visited Switzerland and never saw Bauhin's herbarium. None of the above authors has taken into consideration Linnaeus's use of the herbarium of Joachim Burser (1583-1639) at Uppsala as a source of direct information⁶ regarding the species of Caspar Bauhin. Burser was a friend and one-time student of Bauhin, whose publications make many references to "D. Burserus" as a collector of specimens, and Burser's herbarium⁷, being arranged in accordance with Bauhin's *Pinax*, proved invaluable to Linnaeus when interpreting Bauhin's work and allocating his names to synonymy. Linnaeus's own notes⁸ of his determinations in Burser's herbarium still exist.

¹ Schott, H., " Ueber Aquilegien ", in Verh. Zool.-bot. Ver. Wien iii: 128 (1853).

² Zimmerman, A., *Verwandschafts-Verhältnisse und geographische Verbreitung der in Europa einheimischen Arten der Gattung Aquilegia*: 53 (1875).

³ Fuchs, H. P., in Janchen, E., *Catalogus Florae Austriae* i: 180 (1957).

⁴ Haller, Albrecht von, *Historia Stirpium indigenarum Helvetiae inchoata* ii: 83 (1768).

? 1190. ISOPYRUM.

Aquilegia montana, flore parvo, *Thalictri folio* C.B. Prodr. p. 75. Hist. Oxon. III. p. 458. S. 12. t. 11. f. 5.

Isopyrum stipulis obsoletis LINN. p. 783.

Annon *Aquilegia foliis Thalictri, flosculis minutis, seu albis* MENZEL. pugill. t. 8.

In Helvetiorum alpinis C.B. loco non addito.

" Radix exigua: folia Thalictri parva, pallida, virentia: cauliculus tenuis, palma minor, duobus tribusve foliolis brevibus, oblongis, minime divisis. Flos unicus, caeruleus, vulgari Aquilegiae similis, quintuplo minor."

⁵ Gaudin, J., *Flora Helvetica* iii: 476 (1828).

⁶ De Beer, Gavin, " Joachim Burser et les Alpes de la Suisse ", in Les Alpes xxiii: 32-34 (1947); also " The Dick Herbarium ", in Journ. Linn. Soc. Lond., Bot. iv: 320-332 (1955).

Stearn, W. T., *An Introduction to the Species Plantarum and cognate botanical works of Carl Linnaeus* (C. Linnaeus, Sp. Pl., Ray Soc. facsimile i): 116-118, 127-128 (1957).

⁷ Juel, H. O., " Joachim Burser's Hortus Siccus ", in Symb. Bot. Upsal. ii, 1: 43 (1936).

VII (1) 109 " *Aquilegia montana parvo flore Bauh.* In horto Dei dicto Galliae Narbonensis. *Aquilegia vulgaris* L."

⁸ Savage, S. (Ed.), *Caroli Linnaei Determinationes in Hortum Siccum Joachimi Burseri*: 21 (1937). 109 *Aquilegia...A. montana parvo flore* Hort. Dei.

The Linnaean protologue of *Isopyrum aquilegioides* in the *Species Plantarum* is as follows :

3. *ISOPYRUM stipulis obsoletis.*

aquilegioides

Aquilegia montana, flore parvo, thalictri folio. *Bauh.*

pin. 144. *prodr.* 75. *Bauh. hist.* 3. p. 484. *Raj. hist.*

707. *Moris. hist.* 3. p. 458. s. 12. t. 11. f. 5. *Hall.*

helv. 310.

Habitat in Alpibus Helveticis, Tridentinis, Apenninis.

In analysing this, it should be noted that the phrase-name *Isopyrum stipulis obsoletis* is one specifically drafted for the *Species Plantarum*, not taken over from the *Hortus Cliffortianus*, *Hortus Upsaliensis*, or any other earlier Linnaean publication, and, since it simultaneously uses a term *stipulis* of special Linnaean application and calls attention to a character not mentioned in the descriptions of the Bauhins and other pre-Linnaean authors, it must have been based on an illustration or a specimen seen by Linnaeus when writing the *Species Plantarum*. This consideration excludes any specimen in Bauhin's herbarium. The literature cited repeats the information given by Bauhin but also includes a small engraving in Morison's posthumous *Plant. Hist. Univ. Oxon.* iii : sect. 12, t. 1 fig. 5 (1699), labelled *Aquilegia parvo flore Thalictri folio*, which shows a small shoot, without flowers, of uncertain identity but considered by De Candolle to represent *Isopyrum thalictroides* (Fig. 2). Morison's engraving is, however, a copy of one published in Mentzel's *Index Nom. Pl. Univers.*, *Pug. Pl. Rar.* : t. 8 (1682), under the name *Aquilegia fol. thalictri, flosc. minutissimis albis, Apenn. montis*, the text stating that it grew "in Appennini locis petrosis et in Alpibus circa Tridentum".

Linnaeus's statement "Habitat in Alpibus Helveticis, Tridentinis, Apenninis", like so many of his statements regarding geographical distribution, can be traced back to Ray's *Historia Plantarum* i : 707 (1686), where Ray, after repeating Bauhin's statement "In Helvetiorum Alpibus reperitur", adds that Mentzel's *Aquilegia foliis Thalictri, flosculis minutissimis albis* found "in Apennini locis petrosis et in Alpibus circa Tridentum" appears to differ from Bauhin's blue-flowered *Aquilegia montana parvo flore, Thalictri folio* in nothing but the colour of its flowers. From this it was but one step more for Morison's editor Bobart to treat them as identical by using Mentzel's figure to illustrate Bauhin's plant.

It is thus evident that Linnaeus's protologue covers a number of elements :

1. A Swiss plant described by Bauhin ;
2. Plants of the Apennines and the Tridentine Alps recorded by Mentzel, Ray and Morison.

There is also another element, not directly cited by Linnaeus in the *Species Plantarum* but known from his notes to have been consulted by him, namely a specimen (VII (1) 109) in Burser's herbarium labelled "*Aquilegia montana parvo flore Bauh.*" which agrees with Bauhin's description. This specimen is not, however,

*Aquilegia parvo
flore Thalictri folio*
C. B. P.



FIG. 2. *Aquilegia parvo flore Thalictri folio* C.B.P. as illustrated in Morison, Pl. Hist. Univ. Oxon. iii: sect. 12, t. 1 fig. 5 (1699); syntype of *Isopyrum aquilegioides* L.

from Switzerland, but from the locality "Horto Dei dicto Galliae Narbonensis", i.e. from the Hort de Dieu north of Montpellier where Burser botanized. In his notes Linnaeus attributed this to *Aquilegia*. Why he referred Bauhin's plant and Morison's to *Isopyrum* is obscure, because neither in Bauhin's account nor in Morison's figure are any floral details given to place it in *Isopyrum* (defined by Linnaeus as having "Nectaria...brevissima...intra corollam posita" and "*Germina* plurima") rather than in *Aquilegia* (defined by Linnaeus as having the nectarium "inferne productum in tubum longum, attenuatum, pendulum, apice obtuso, incurvo" and "*Germina* quinque"). It may indeed have simply been the dwarf habit. That, despite this, it closely resembled an *Aquilegia* is indicated by his choice of the epithet *aquilegioides*.

From a photograph (Fig. 3) of the Burser specimen at Uppsala, kindly supplied by Dr. Rolf Santesson, it is clear that the plant concerned

(1) is not *A. einseleana* F. W. Schultz because in that species the leaves are too much divided and the flowers and their spurs are too small;

(2) is not *A. alpina* L. because in that species the leaves are too much divided, their segments are too pointed, and the flowers are too big;

(3) is not *Isopyrum thalictroides* L. because in that species the flowers are much too small, have no spur, and the leaves do not come off from the base of the stem.

There seems no reason why it should not be identified as a dwarf form of *Aquilegia vulgaris* L. to which it has already been referred by Juel. Since the choice of lectotype of Linnaeus's *Isopyrum aquilegioides* thus rests between Morison's obscure figure taken from Mentzel and Burser's specimen it is obviously preferable to choose the latter. For nomenclatural purposes *Isopyrum aquilegioides* and the combination *Aquilegia aquilegioides* (L.) H. P. Fuchs based upon it then fall into the synonymy of *Aquilegia vulgaris* L., and the use of *A. aquilegioides* for *A. einseleana* cannot be maintained. At the same time there seems no reason why Hagenbach's view that Bauhin's plant, also, represented a dwarf form of *A. vulgaris* may not be accepted.

The locality "Hortus Dei" or "Hort de Dieu" was not a made garden but a mountainous region visited by many botanists from Montpellier in the 16th, 17th and 18th centuries; originally rich in plants, it became devastated by overgrazing. As pointed out by S. Savage in Proc. Linn. Soc. Lond. cli: 140 (1939), Linnaeus was much interested in this locality, probably on account of its name and the references to it in Burser's herbarium, and he even wrote an *Iter ad Hortum Dei* which has not been published. He never visited the south of France himself but derived his geographical information about the Montpellier region from his correspondent Sauvages (cf. *Lettres inédites de Linné à Boissier de la Croix de Sauvages*: 97, 217 (1860). In the dissertation *Flora Monspelienensis...desert Theoph. Erdm. Nathhorst*: 4 (1756), reprinted with minor alterations in Amoen. Acad. iv: 472 (1759), he describes it as "Hortus Dei (*Lespiron*) 14 Leucis Monspelio, constans valle subrotunda, in excelsissimo loco Montis Calcaris, quam sine labore et periculo nullus adit, hodie paucissimis plantis rarioribus ornatur".

The locality "Hort de Dieu" is marked on Cassini's *Carte de France*, sheet no. 56 (t. 114), as being about 5 kilometres S.W. of St. André de Valborge and about 65 kilometres N.N.W. of Montpellier, with which accords the statement in P. Joanne,

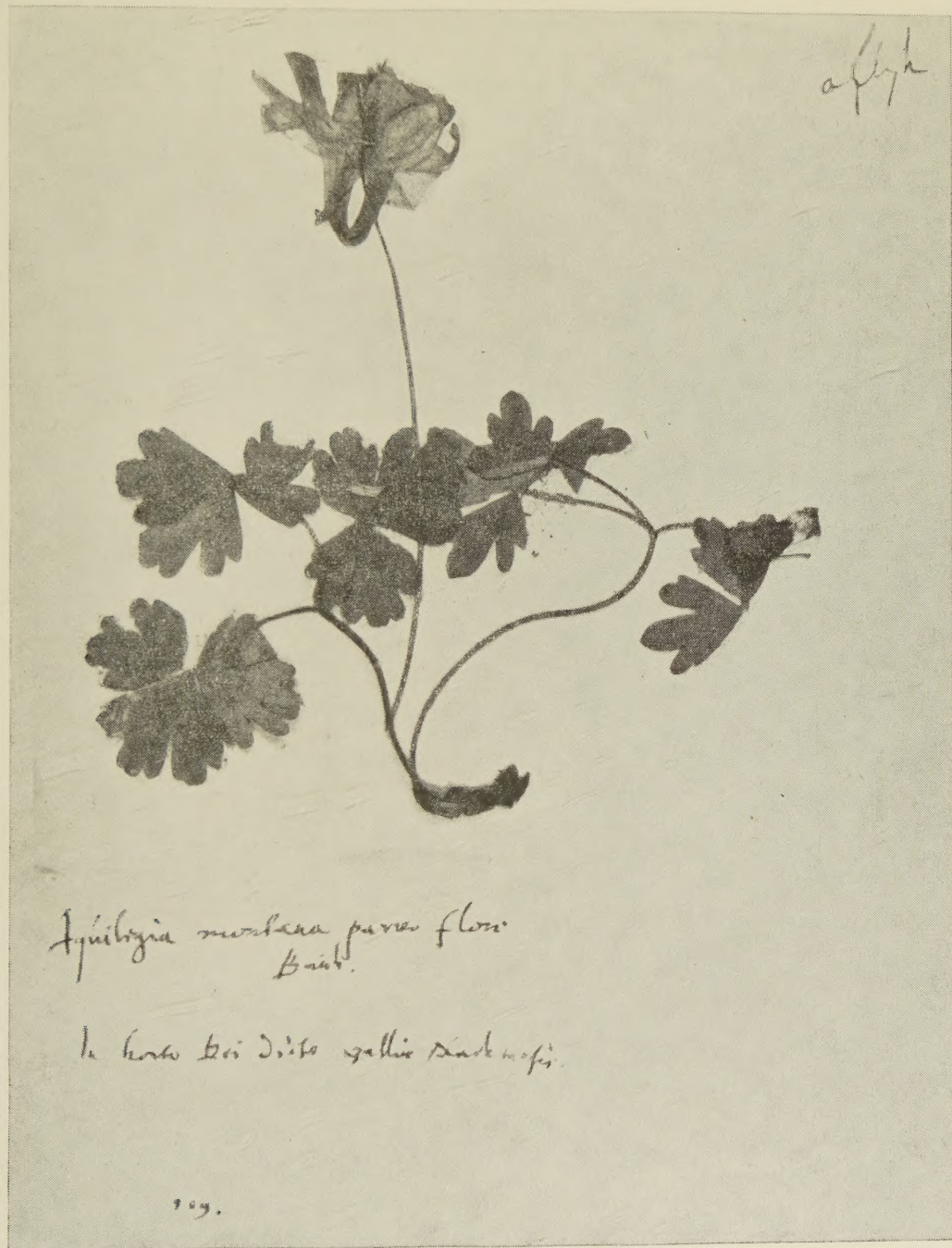


FIG. 3. *Aquilegia montana parvo flore* Bauh. Specimen in Burser's Herbarium, VII (1) 109, Botaniska Museet, Uppsala; lectotype of *Isopyrum aquilegioides* L.

Dict. Géogr. Admin. France iii : 1893 (1894), that the name was applied to the summit of the Montagne d'Aigoual (1,567 m., 44° 08' N., 3° 35' E.) on the border of the departments of Gard and Lozère. The village of Lesperou (Gard), 1,230 m., is close to the Hort de Dieu. This should not be confused with the Mont Hortus or Montagne de l'Hortus nearer Montpellier.

We are very grateful for the co-operation of our colleague Dr. A. Melderis in the identification of Burser's specimen.

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